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6, 7, 8 and 9, all are productive. No. 9, which is the least productive of the four, was located under restriction to the Lower Campbell tract. No. 8, the most productive, was the last one I located without restriction. Nos. 6 and 7 were both down before any other well was started in the Whiskey Run or Queenstown Run field. The same principles which guided the locating these wells, led me to advise the Brady's Bend Iron Company against trying the Upper Campbell tract, and the results of boring there by other parties have confirmed their correctness, and there have been so many confirmations that my confidence in the principles amounts to conviction.

In opening the Whiskey Run or Queenstown Run field, I simply followed the general line of strike from the Armstrong Run field; but in locating individual wells I sought lines and areas of deposition of coarse pebbles in the "sand rocks" out of broken condition of the "sand rocks."

I had not so far completed the research into the laws which govern the direction and position of these lines and areas that I felt free to communicate them when I left the oil country, but hope to push the investigations further hereafter. Meanwhile it may be of some interest that the above results have followed an effort pursued by scientific methods to find and apply such laws.

Yours, very respectfully,

JAMES E. MILLS,
Vice President Big Muddy Iron Company.

Stated Meeting, November 15th, 1872.

Present, nine members.

Vice-President, Mr. FRALEY, in the Chair.

A photograph of Mr. H. M. Phillips was received for insertion in the Album.

Letters accepting membership were received from Mr. Isaac Norris, Jr., dated Philadelphia, October 31st, 1872, and from Mr. A. J. Cassatt, dated 2030 Delancey Place, Philadelphia, November 6th, 1872.

Letters of acknowledgment were received from the Smithsonian Institution (Proc., No. 78), and the Nat. Verein at Bremen (87), September 7th, 1872.

Donations for the Library were reported from the St. Petersburg Observatory; Antiquarian Society at Copenhagen; R. Academy at Berlin; German Anthropological Society; Museum of Natural History at Paris; Paris Anthropological Society; Annales des Mines; Revue Politique; Nature; L. & H. S. Quebec; Boston S. N. H.; Yale College;

American Chemist; Penn Monthly; Am. J. of Pharmacy; Medical News; Academy of N. S. Philadelphia; and Dr. Jarvis, of Dorchester, Mass.

The death of Gen. George Gordon Meade, on the 6th instant at Philadelphia, aged 56, was announced by Mr. Trego. On motion, Gen. A. A. Humphreys was appointed to prepare an obituary notice of the deceased.

Mr. Gabb described the results he arrived at in making up a summary from tables of undoubted Miocene fossils, collected by him during three years of exploration in Santo Domingo. These tables double the fauna hitherto described. Instead of the normal percentage of extinct to recent species according to Lyell's formulas, it appears that the San Domingo Miocene holds 217 extinct and 97 living forms; these living forms existing on both sides of the present barrier of Central America, on top of which barrier lie Miocene rocks. Mr. Gabb stated that he had just finished the study of the Miocene Fossil Mollusca, collected during his recent geological examinations in Santo Domingo. He found 217 extinct species, and 97 which he recognized as living; 15 of these latter are peculiar to the "Panama Province," having disappeared from the Caribbean waters since the Miocene period. One or two are found in the Eastern seas only, and others are now living on the opposite side of the Atlantic, or on the Atlantic coasts of North and South America; while still others are closely allied to species or belong to genera only living at present in the seas of Australia and Southern Asia.

The most interesting feature connected with these fossils, however, is that notwithstanding the proportion of living to extinct forms is about one-third, yet, from the "facies" of the collection, from the presence of antique types among the genera, and from the vertebrate remains, such as *Caracharodon*, *Megalodon* and other well-known Miocene species, there seems little doubt but that the formation was correctly referred to that age by previous writers, such as J. Carrick Moore, Etheridge, and Duncan.

Lyell established the rule many years ago, that the typi-

cal Miocene contains but 17 per cent. and the Pliocene from 35 to 50 per cent. of living species. But that rule, while it applies perfectly well to the local deposits on which it was based, is too empirical to be followed elsewhere, except in a very general manner and where the other data are in accord.

An essential objection to the numerical rule exists in the different values that students place on specific characters. No two writers agree on this subject. Besides, as regions become more thoroughly worked up, discoveries of additional fossils, or the finding of living species, previously known only as fossils, vary the proportions constantly. The general deductions, therefore, drawn by an experienced palæontologist from large collections, are safer guides than any table of percentages.

MUS. COMP. ZOOLOGY, }
Cambridge, Mass., Dec. 3, 1872. }

MY DEAR PROF. LESLEY :

The steamer did not sail on Saturday and I have availed myself of the delay to run up here. It was very fortunate, since I have had the opportunity of seeing Dr. G. A. Maack, and of learning from him some of his geological results on the late Selfridge Expedition on the Isthmus. Please have the following note added to my paper, with the permission of the Society :

The results of the explorations of Dr. Maack last year, on the Isthmus of Darien, put at rest the question of the late geological origin of the Isthmus. He found three late Tertiary strips extending entirely across, proving three channels at least in the Miocene, and some of the deposits indicate a much later era of elevation. One of these, 10 miles inland from Panama, evidently Post Pliocene, is at least 150 feet above the tide.

In a very cursory examination of his fossils I detected the following species, also found in Santo Domingo :

Melongena melongena.

Murex recurvirostris.

Malea ringens.

Terebra robusta.

Conus pyriformis.

Natica sulcata.

Cerithium plebium.

Turritella.

Cypræa exanthemata (v. *cervinella*).

Venus paphia.

Cardium Haytense.

Pecten papyraceus.

Dr. Maack in his report calls the older beds of Panama, Pliocene. They

seem to me nearer in age to the rocks which, in Santo Domingo, I called Miocene, but whatever be their real age, the one fact is well established : The Isthmus was elevated at a period not remote from the age of the great volcanic outflow of the Sierra Nevada.

Yours, sincerely,

W. M. GABB.

The minutes of the Board of Officers and Council were read.

Pending nominations, 703 to 707, and new nominations, 708, 709, 710, were read.

And the Society was adjourned.

Stated Meeting, December 6th, 1872.

Present, 13 members.

Vice-President, Mr. FRALEY, in the Chair.

Letters accepting membership were received from Mr. Broca, dated Paris, November 14th, and Mr. Hale, dated Clinton, Ontario County, Canada, November 26th, 1872.

Photographs of Mr. B. S. Lyman and Mr. W. M. Gabb were received for the Album.

A letter desiring the establishment of correspondence, was received from Mr. W. A. Smith, Secretary of the Tennessee Philosophical Society, dated Columbia, Tennessee, November 21st. On motion, the Society named was ordered to be placed on the list of correspondents to receive the Proceedings.

A letter from M. de Koninck, dated Liège, September 3d, requesting the Society to supply deficiencies in his suite of its Proceedings, was read, and, on motion, the request granted.

Letters of acknowledgment were received from the Carolinian University, at Lund, August 1st (XIV., i. ii., 73 to 85); the Physical Society, at Berlin, September 1st (XIV., i. ii., 83 to 86); the Society at Bonn, August 6th (84 to 86); the